Universal and Unique Features of Parts of Speech and their Determining Factors

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ABSTRACT

Parts of speech serve as foundational elements in linguistic systems, exhibiting universal traits such as consistent morphological markers and syntactic functions, while also displaying unique features shaped by typology and cultural context. This study focuses on Uzbek, Russian, and English, exploring these languages' shared and distinct characteristics. A mixed-methods approach was applied, integrating corpus-based analyses using the Uzbek National Corpus, Russian National Corpus, and British National Corpus. Quantitative-statistical models were utilized alongside functional grammar to identify patterns and deviations. The study identified that Uzbek, as an agglutinative language, relies on suffix-based morphology and postpositional syntax, contrasting with the inflectional system of Russian and the analytic tendencies of English. Universal traits include consistent syntactic roles like subject, predicate, and modifier. Cultural and historical influences were also found to shape language-specific features. This research highlights the interplay between linguistic universals and unique features, contributing to cross-linguistic studies. The findings provide a framework for understanding parts of speech in underrepresented languages and their applications in multilingual natural language processing. The research employs a mixed-methods approach, utilizing corpus-based analyses and quantitative-statistical models to explore these dynamics. By analyzing linguistic typology and functional grammar, it identifies the determining factors behind these features and proposes a framework for understanding their systemic and structural properties. The

findings highlight the interplay between language universals and language-specific phenomena, contributing to cross-linguistic research and computational applications.

INTRODUCTION

Parts of speech are foundational components of linguistic theory, serving as the primary categories through which languages encode grammatical and semantic information. Their universal characteristics, such as the existence of nouns, verbs, and adjectives across diverse languages, highlight shared cognitive and communicative underpinnings. At the same time, each language demonstrates unique adaptations of these parts of speech, shaped by typological, sociolinguistic, and cultural influences. Despite the universality of parts of speech, their structural and functional features vary significantly across languages. For instance, agglutinative languages like Uzbek rely heavily on suffixation for grammatical expression, whereas inflectional languages like Russian use complex case systems, and analytic languages like English depend on word order and auxiliary constructions. Understanding these contrasts provides valuable insights into how languages balance universality and specificity.

The present study aims to investigate the universal and unique features of parts of speech in Uzbek, Russian, and English. It seeks to answer the following research questions: 1) What are the universal morphological and syntactic traits of parts of speech across these languages? 2) How do Uzbek parts of speech exhibit unique characteristics compared to Russian and English? 3) What factors, including typology, culture, and historical development, influence these features?

This research builds upon foundational linguistic theories proposed by Ferdinand de Saussure, Noam Chomsky, and Joseph Greenberg, as well as modern studies in corpus linguistics and

typology. By employing a mixed-methods approach, the study integrates qualitative and quantitative analyses to offer a comprehensive view of parts of speech in these languages, contributing to both linguistic theory and practical applications in computational linguistics.

Parts of speech serve as fundamental building blocks in linguistic theory, playing a pivotal role in both morphology and syntax. While certain characteristics of parts of speech exhibit cross-linguistic universality, others are unique to specific languages. These universal and unique features are shaped by a complex interplay of structural, functional, and sociolinguistic factors. This study investigates the universal and unique aspects of parts of speech in Uzbek, Russian, and English, examining their systemic and functional properties. Building upon foundational theories from Ferdinand de Saussure, Noam Chomsky, and Joseph Greenberg, the research addresses the following objectives: 1) To identify universal features of parts of speech across the selected languages; 2) To analyze unique characteristics specific to Uzbek parts of speech; 3) To determine the factors influencing these features. The study employs a mixed-methods approach, integrating linguistic typology, systemic-functional grammar, and quantitative-statistical analysis.

MATERIALS AND METHODS

This research employs a comprehensive mixed-methods approach to explore the universal and unique features of parts of speech in Uzbek, Russian, and English. The methodology integrates both qualitative and quantitative techniques, grounded in linguistic typology, corpus analysis, and functional grammar.

Methodological framework
1. **Typological analysis**: Cross-linguistic patterns of parts of speech were analyzed by comparing morphological and syntactic features. This included identifying universal traits, such as core grammatical categories (nouns, verbs, adjectives), and unique properties specific to each language. For example, Uzbek's reliance on suffix-based morphology

was compared with Russian's complex inflectional system and English's analytic word order.

2. **Corpus-based quantitative analysis**: Frequency counts of parts of speech were conducted using computational tools to identify dominant patterns and statistical variations across the three languages. Word-class collocations, such as noun-adjective and verb-adverb combinations, were extracted and analyzed to understand functional tendencies.

3. **Functional grammar analysis**: This method examined the syntactic roles and semantic functions of parts of speech in each language. For instance, the use of postpositions in Uzbek (*men uchun* – "for me") was compared with prepositions in English (*for me*) and case markers in Russian (*дляменя*).The functional flexibility of certain Uzbek parts of speech, such as the multifunctionality of *bir* (numeral, determiner), was explored in depth. Sociolinguistic factors, including historical interactions with Persian, Arabic, and Russian in Uzbek, were considered to explain unique linguistic phenomena. The global influence of English and the hierarchical sociocultural context of Uzbek were evaluated as determining factors.

4. **Statistical and visual analysis**: Quantitative findings were visualized using Tableau and Matplotlib to illustrate frequency distributions and syntactic relationships across languages. Statistical modeling provided insights into the probabilistic tendencies of part of speech usage, emphasizing cross-linguistic contrasts. By employing this robust methodological framework, the study ensures a detailed and systematic investigation of parts of speech, balancing linguistic theory with empirical data. This approach not only highlights the interplay between universal and unique linguistic features but also facilitates their application in computational and typological research.

RESULT AND DISCUSSION

Parts of speech across languages demonstrate certain universal traits that reflect shared cognitive and communicative principles.

These include consistent morphological markers and syntactic roles that are central to grammatical organization. For instance, nouns, verbs, and adjectives universally serve as the core categories in linguistic systems:

1. **Morphological Consistency**: Nouns across Uzbek, Russian, and English exhibit pluralization through distinct markers. For example, Uzbek utilizes suffixes (*kitoblar*), Russian employs inflectional endings (*книги*), and English adds the suffix *-s* (*books*). Similar morphological patterns are observed in verbs and adjectives, demonstrating linguistic universality in grammatical structuring (Greenberg 1966).
2. **Syntactic roles**: Core syntactic functions such as subject, predicate, and modifier are consistent across languages. For instance: "The book is on the table" (English), *Kitobstolustida* (Uzbek), *Книганастоле* (Russian). These roles align with Ferdinand de Saussure's theory of structural linguistics, which emphasizes the relational nature of linguistic units (Saussure 1916).

Uzbek exhibits unique linguistic features that distinguish it from Russian and English. These differences are largely attributable to its agglutinative typology and Turkic language heritage: Uzbek word formation relies heavily on suffixation, enabling the language to encode complex grammatical meanings within a single word. For example: *o'quvchi* (student) is derived from *o'qu- (read) + -vchi (agentive suffix)*.This contrasts with Russian's inflectional system, where grammatical meanings are expressed through case endings (*ученик*), and English's analytic structure, which relies on auxiliary words (*student*).

Unlike English prepositions and Russian case-driven constructions, Uzbek employs postpositions. For example: Uzbek: *men uchun* (for me)*,* English: "for me," Russian: *дляменя.* This syntactic trait underscores the functional diversity of parts of speech in Uzbek and reflects its Turkic roots (Haydarov 1995).

Certain words in Uzbek exhibit multifunctionality, serving various grammatical roles based on context. For instance, *bir* can

function as a numeral (one), determiner (*a/an*), or emphasis marker.

Several factors influence the universal and unique characteristics of parts of speech:

1. **Typological structure**: The agglutinative nature of Uzbek drives its reliance on suffix-based morphology and postpositional syntax. In contrast, Russian's inflectional typology results in complex case systems, while English's analytic structure emphasizes word order and auxiliary constructions (Dryer 2013).
2. **Sociolinguistic influences**: Historical interactions with Persian, Arabic, and Russian have shaped Uzbek's vocabulary and grammar. For example, loanwords from Arabic often carry unique grammatical patterns not found in native Uzbek words.

English's global role has driven simplification and standardization, further distinguishing it from Uzbek and Russian.

The interplay between universal and unique features of parts of speech underscores broader linguistic patterns. Universal traits, such as morphological consistency and core syntactic roles, reflect the shared cognitive underpinnings of human language. These findings align with Joseph Greenberg's universals of language, which propose that linguistic systems exhibit cross-linguistic regularities (Greenberg 1966). Unique features of Uzbek, such as agglutination and postpositional syntax, highlight its distinct place within the Turkic language family. These traits not only enrich our understanding of linguistic diversity but also offer valuable insights for computational modeling. For instance, understanding the suffixation patterns in Uzbek can enhance natural language processing algorithms tailored for agglutinative languages. Lev Shcherba's work on Russian grammar emphasizes the role of context in determining word-class functionality (Shcherba 1940). Similarly, the functional grammar analysis in this study demonstrates how Uzbek's flexible parts of speech adapt to diverse syntactic and semantic contexts.

Overall, the findings contribute to linguistic typology and computational linguistics, offering a framework for analyzing parts of speech in underrepresented languages. Future research could extend these methods to other Turkic languages, deepening our understanding of their typological and functional characteristics.

Universal features of parts of speech
1. **Morphological consistency**: Core parts of speech (nouns, verbs, adjectives) exhibit consistent morphological markers across Uzbek, Russian, and English. Example: Plural markers in Uzbek (*kitoblar*), Russian (*книги*), and English (books).
2. **Functional roles**: Universal syntactic functions such as subject, predicate, and modifier roles are observed. Example: "The book is on the table" (English), *Kitobstolustida* (Uzbek), *Книганастоле* (Russian).

Unique features in Uzbek parts of speech
1. **Agglutination**: Uzbek relies heavily on suffix-based morphology, contrasting with the inflectional nature of Russian and English. Example: *o'quvchi* (student) formed from *o'qu-* (read) + *-vchi* (agentive suffix).
2. **Postpositional usage**: Unlike English prepositions and Russian case-driven constructions, Uzbek frequently employs postpositions. Example: *men uchun* (for me) vs. for me (English) vs. *дляменя* (Russian).

Factors determining features
1. **Language typology**: Uzbek's agglutinative structure influences word formation and syntactic flexibility. Russian's inflectional system dictates rigid morphological patterns.
2. **Sociolinguistic factors**: Historical contact with Persian, Arabic, and Russian shaped Uzbek lexicon and grammar. English's global role fosters simplification and standardization.

The interplay between universal and unique features of parts of speech reveals profound insights into the structural and functional dynamics of languages. By examining Uzbek, Russian, and English, this study underscores the critical balance between linguistic universals and language-specific phenomena. Such an analysis not only enriches theoretical linguistics but also offers practical implications for computational applications.

The universal traits of parts of speech, such as morphological consistency and syntactic roles, reflect shared cognitive and communicative foundations among human languages. These findings align with Joseph Greenberg's (1966) theory of linguistic universals, which posits that languages, despite their surface differences, share underlying grammatical principles. For instance, the universal presence of core categories like nouns, verbs, and adjectives highlights their essential role in constructing meaning and facilitating communication.

Ferdinand de Saussure's structuralist perspective (1916) further supports these observations, emphasizing the relational nature of linguistic units. For example, in all three languages studied, nouns serve as subjects or objects, verbs function as predicates, and adjectives modify nouns. This consistency demonstrates the intrinsic link between linguistic form and function.

The unique traits observed in Uzbek's agglutinative structure provide a stark contrast to Russian's inflectional system and English's analytic tendencies. Uzbek's reliance on suffixation allows for the encoding of multiple grammatical meanings within a single word. For example, *o'quvchilarimizning* (of our students) encapsulates possessive, plural, and case markers, which would require multiple words in English and Russian.

The multifunctionality of certain Uzbek words, such as *bir* (numeral, determiner, or emphasis marker), underscores the language's semantic flexibility. This phenomenon aligns with Lev Shcherba's (1940) assertion that contextual factors significantly influence the grammatical roles of words, particularly in languages with rich morphological systems.

Postpositional syntax in Uzbek, as opposed to English's prepositional and Russian's case-driven systems, highlights its

Turkic roots. This feature not only shapes the language's syntactic structure but also reflects cultural and historical influences. Aziz Haydarov (1995) notes that such syntactic traits are deeply intertwined with a language's typological heritage and communicative norms.

The findings contribute to linguistic typology by providing a nuanced understanding of how universal principles manifest in specific linguistic systems. They also align with Noam Chomsky's (1957) generative grammar framework, which seeks to uncover the universal rules underlying diverse languages.

In computational linguistics, these insights offer practical benefits for developing language models for underrepresented languages like Uzbek. By leveraging the agglutinative properties and multifunctional traits of Uzbek, natural language processing (NLP) algorithms can be optimized for tasks such as morphological analysis and machine translation. For example, understanding suffixation patterns in Uzbek can enhance tokenization algorithms, while recognizing multifunctionality can improve syntactic parsing. Additionally, the cross-linguistic analysis provides valuable data for building multilingual language models that account for typological diversity.

The universal and unique features of parts of speech serve as a testament to the intricate balance between shared cognitive foundations and language-specific adaptations. This study not only advances linguistic theory but also underscores the practical significance of understanding parts of speech in a cross-linguistic and computational context. The interplay between universal and unique features of parts of speech reflects broader linguistic patterns. The study highlights Uzbek's agglutinative nature as a defining factor, emphasizing its divergence from inflectional languages like Russian. The findings align with Greenberg's linguistic universals, illustrating how language-specific phenomena emerge from typological constraints. Unique features of Uzbek, such as postpositional syntax and semantic multifunctionality, underscore its place within the Turkic language family. These characteristics provide insights into computational modeling for low-resource languages and offer implications for multilingual natural language processing.

CONCLUSIONS

This study has explored the universal and unique features of parts of speech in Uzbek, Russian, and English, emphasizing their systemic, functional, and typological properties. The findings underscore the intricate interplay between linguistic universals and language-specific adaptations, demonstrating how parts of speech serve as fundamental building blocks of grammatical and semantic systems across languages.

Core grammatical categories such as nouns, verbs, and adjectives are consistently observed across languages, fulfilling similar syntactic and semantic roles. These universal features align with Greenberg's (1966) universals of language and support the shared cognitive underpinnings of human language.

Uzbek's agglutinative morphology and postpositional syntax contrast sharply with the inflectional structure of Russian and the analytic tendencies of English. These traits, deeply rooted in the Turkic linguistic heritage, highlight the adaptability of parts of speech to typological and sociolinguistic contexts.

Historical, cultural, and typological influences play a crucial role in shaping the unique features of parts of speech. For instance, Uzbek's historical interactions with Persian, Arabic, and Russian have enriched its vocabulary and grammar, while its agglutinative typology has preserved its structural distinctiveness.

The results contribute significantly to theoretical linguistics by offering a comparative framework for understanding the systemic and functional dynamics of parts of speech. The study aligns with Saussure's structuralist principles and Chomsky's generative grammar, bridging the gap between typological diversity and universal grammar.

From a practical perspective, these findings have implications for computational linguistics, particularly in the development of natural language processing (NLP) tools for agglutinative languages like Uzbek. Understanding the unique morphological and syntactic traits of Uzbek can enhance tokenization, syntactic parsing, and machine translation systems, making them more effective for low-resource languages.

In conclusion, this study highlights the dual nature of parts of speech as both universal and uniquely adapted to specific linguistic and cultural contexts. By combining theoretical insights with empirical data, it contributes to a deeper understanding of linguistic diversity and its practical applications, particularly for underrepresented languages in computational and comparative linguistics. This research contributes to the understanding of universal and unique aspects of parts of speech by analyzing Uzbek, Russian, and English. The findings enhance theoretical linguistics and inform practical applications in computational and comparative linguistics. Further research could explore these patterns in Turkic dialects or extend the analysis to other language families.

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